

CLAIMS:

1. A plate type heat exchanger comprising a plurality of plates stacked on one another, each of said plates having: a seal portion, which is provided on an outer peripheral portion of the plate and with an interior of which inflow and outflow ports of heat exchanging fluids are communicated; and heat-transfer surface elements formed in a mountain-shaped manner in a thicknesswise direction of the plate and arranged to form flow passages within the seal portion, characterized in that the heat-transfer surface elements are in the form of a quadrangular pyramid having flat top, and the seal portion having flat portions on outer peripheral portions of the flow passages to define a bottom surface, and mountain portions, which extend upright from the flat portions and of which tops are formed to be flat in shape.

2. A plate type heat exchanger according to claim 1, wherein the flat portions and mountain portions of the vertically adjacent plates are stacked on one another to overlap each other.

3. A plate type heat exchanger according to claim 1, wherein a part of the heat-transfer surface elements comprises a flat portion defining bottom surface of the plate and a mountain portion, which extends upright from the flat portion and of which a top is formed to be flat in shape, and the vertically adjacent flat portions and mountain portions are

stacked on one another to overlap each other.

4. A plate type heat exchanger according to claim 1, wherein a part of the heat-transfer surface elements arranged centrally in a widthwise direction of the plate comprises a flat portion defining bottom surface of the plate and a mountain portion, which extends upright from the flat portion and of which a top is formed to be flat in shape, and the vertically adjacent flat portions and mountain portions are stacked on one another to overlap each other.

5. A plate type heat exchanger according to claim 1, wherein the flat portions and the mountain portions on the seal portion are arranged alternately in a flow direction of the flow passages and the flat portions and mountain portions of the plates are stacked on one another to overlap each other.

6. A plate type heat exchanger according to claim 1, wherein R410A flows through one of the flow passages defined by the stacked plates and water flows through the other of the flow passages.

7. A plate type heat exchanger according to claim 1, wherein carbon dioxide flows through one of the flow passages defined by the stacked plates and water flows through the other of the flow passages.

8. A plate type heat exchanger according to claim 1, wherein a zeotropic refrigerant mixture flows through at least one of the flow passages defined by the stacked plates counter to a flow through the other

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of the flow passages.